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> MICFOGG Newsletter.
> Volumie 4, Number 4 April. 15E6

MICRO/99 is a not-for-profit group dedicated to the sharing of information and public domain software for the Texas Instruments 99/4A home computer. Members have free access to our library of severa? hundred programs on cassette and diskette. Meetings are held at 7:00 p.m. on the third Thursday of each manth at the Illincis Agriculture Association building, 1781 Towanda Averue, Bloomingtori. Attendees sign in with the guard at employee entrance number 4 at the rear of the building. Turrileft at the sign for the main reception area and go down the stairs on the far side of it. Vishtors are especially welcome, and may attend one meeting free of charge.

## *** AFRIL 17 MEETING ***

At the APRIL 17, 1986 meeting Brian Sydney, a member from Delevar, will present GENFILE, a general purpose filing system that he programmed in extended EASIC. Brian says he has used the programito keep files of paychecks, utility bills, winning lotto numbers, grocery lists and personal checke by category, I have read the documentation and experimented just a bit with the proprami, and it looks like it could be very useful. It not only maintains the data files, it automatically maintains a master index file which coritains information on all the data files, and their backup copies. Eriari has said he will make copies available at the meeting.

At our last meetirg we had a request for a programming tutorial on the use of arrays. I wrote DICEPLOT, the program on the next page, for that purpose. It illustrates array usage, and also a graphics technique, the use of a subprogram, and some elementary probability theory. I'll discuss it at the meeting.

At all meetings members are encouraged to share any informationgleaned from magazines, cataloge, bulletin boards, newsletters from other clubs, personal experience with produrts, ete, If you have a computer related question or problem, someone at the meeting may have an answer or suggestion for you. And, you are encouraged to bring and show any interesting program you found or wrote recently.

## **** SMART REMARKE ****

I thought the last meeting was particularly interesting. Aubrey Johnson's telecommunications demo using local bulletir, boards was very well received. I wish I were always so well prepared and well organized as he is. Nice job Aubrey!

Our hardware guru, Hert Beer impressed everyone again too. Others have mounted 32 K of RAM in the console, but Herb is the only one I know who mounted it on the back of the receptacle in the module port. It made a compact plug-in unit that was passed around for all to see. This mouriting also puts it right under the ventilation holes. Herb also had a module case with the chips from 3 modules mounted irit, selectable with a toggle switch. I understand Herb has been promated inito management at the phone company and would appreciate the donation of a suit or two! Congratulations Hert!

```
Sid Smart, F'resident
```

I wrote the program below in response to a request for a tutorial on the use of arrays，and will discuss it at the next meeting．It simulates the roll of two dice and plots growing bargraphs of the values of each die and their sum．It＇s interesting to watch the graphs develop differently each time，sometimes defying your intuitive sense of what should happen．A trick question：as you roll a die more times，does the spread in the number of times each value comes up tend to increase or decrease？

```
90 !DICEPLOT - SID SMART - MICRO/99, BLOOMINGTON IL - 4/86
1Q日 CALL CLEAR FPRINT THIS PRCIGRAM SIMLLATES THE ROLLING OF 2 DIGE AND FLGITS
    DYNAMIC BARGRAPHS OF THE WALUE OF EACH DIE AND THE SUM OF THE TWO":"""
118 FRINT "THE SCALING FACTGR YOU ARE ASKED FOR IS THE NLMEER OF FOLLS FEPRESE
NTED BY ONE "PIXEL IN THE HEIGHT OF THE BARS."
120 FRINT " ":"PFESG ANY KEY TO STOF'THE PLOT'AFTER IT HAS STARTED.
PRESS ANY KEY NON TO START.""
```



```
"00000808080080FF800000008000FFFFF0060800000FFFFFF00000080FFFFFFFFF:)
```



```
FFF")
150 CALL KEY(a,k,s):1)IF 5=6 THEN 150
160 CALL HCHAR(1,1,135,736):: DISPLAY AT(1,1):"SCALE = 1 ROLLS =" : : DISPLAY
AT(24,1): '123456'123456 23456789012*
170 x=1 :: ACCEPT AT (1,9)UALIDATE(DIGIT)BEEP SIZE(-3):S
```



```
=23-INT(<D1(1)-1)/(8*Sj):: CALL CHART(ROW,COL)
190 I=INT(6*RND+1):: D2(J)=D2(J)+1 :: IF D2(J)=S*INT(D2(J)/S)THEN COL=I F9:: ROWJ
=23-INT((02(I)-1)/(8*5)):: CALL CHART(RON,COL)
280 K=1+J:: TOT(K)=TOT(K)+1 :: IF TOT(K)=S*INT(TOT(K)/E)THEN COL=K+16 :: FCON=23
-INT({TOT(K)-1)/(8*5)):: CALL CHART(ROW,COL)
210 D1SPLAY AT(1,21):X :: CALL KEY{A,B,C):: IF C<\O THEN 22@ ELSE X=X+1 :: gOTO
180
220 G0TO 220
230 SUB CHART(ROW,COL)
240 C:ALL GCHAR(RCW,C:CL, CHARNLM):: CALL HCHAR(RCWU,COL,CHARNLM+1):: SUEEND
```

96 ! DICEPLOT - SIMPLE UERSION FORMATTED FOR READABILITY

110 CALL CHAR (136;"0000008000080FF0000000000000FFFF')

130 CALL CHAR (140,"0日00日日FFFFFFFFFB80日FFFFFFFFFFFF")
140 CALL C.HAR (142', $\quad$ 日日FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF: $)$
150 CALL HCHAR $(1,1,135,736):$ DISPLAY AT $(24,1):{ }^{1} 123456$ 123456 $23456789012^{*}$

178 CALL CHART (ROW, COL)
$188 \mathrm{~J}=\mathrm{INT}(6 * R N D+1):$ COL=J+9:: ROW=23-INT(D2(J)/8):: D2(J)=D2(J)+1
190 CALL CHART (ROW, COL)
$200 \quad K=1+J:: \operatorname{COL}=K+16:: R O L=23-I N T(T O T(K) / 8):: T O T(K)=T O T(K)+1$
210 CALL CHART (ROLI, COL): : GOTO 168
220 SUE CHART (ROW, COL)
230 CALL GCHAF (ROWI, COL, CHAFTNLM): : CALL HCHAR(ROW,COL,CHARNLM + 1): : SUEENO


The fallowing program was written by George F. Steffan of the LA ģers Computer Group. It appearea in the Nowss issue of the delaware Valley LIEers Grouf riewsletter.

## 

For the past several months 1 have used two prograns to list programs in our newsletter 28 characters wide as they appear on the screen and three colunns wide so they do not waste space. I received a request for the nethod and at the sane tiap, I saw a program to list prograns on a wide printer. So I adapted ny prograns to be nore. versatile instead of single purpose.

MARYLIST will take a progran listing and convert it to whatever line length you desire. There is one bug: if the listed line is an exact multiple of 80 characters in length, the next line will be appended to it. I can think of no sinple solution to this and it is an infrequent occurrence, so it remains in the progran. This progran works on a progran LisTed to disk. If your desired length is 80 or less, the disk file will be opened as UARIABLE 80 so that it nay be edited with TI Writer. If you wish to list to a wide printer, the file will be opened with the correct length.

MULTIPRINT will take a text file and output it to the printer in nultiple columns so that it may be read in noraal newspaper tashion, one column after another. You deternine the number of columns, but you must inforn the progran of the output device. This progran has no provisions to enable the output text to be edited, Editing nust be done before using it.

Before using MULTIPRINT you should prepare your text file. You should first use VARYLIST or the Formatter of TI-Wiriter to create a text file of the desired width. Then examine the file and delete any unneeded blank lines. Make sure that the number of lines is an exact nultiple of the nunber of columns you will be using. Insert blank lines to reach this number. You nay put these blank lines any place in the text, but they should be placed 50 as to form pleasing colunn breaks. If you have used the text formatter to print the file, you should use the Replere string comand to change all Line Feeds (Control $U$, Shift $J$, Control U), Carriage Returns (Control U, Shift $N$, Control U). and New Page (Control U, Shift L, Control U) to spaces. Because the text is reformatted after these changes, be sure you are not in Word Wrap Mode when you do this. If you make the first line of yous text longer than the line length you plan to tell the printer, it will print across the page as on this article. In this case, you nust be sure that the first two iines of succeeding columns are blank. Then save the text file or print it to disk and run MULTIPRINT. The progran is designed to accept 300 lines of text, enough for five colums of 60 lines each. If the number is increased too much, the computer will run out of nemory.

The programs are listed herewith, each giving an exanple of itself.

100 REM VARYLIST -6eo. F, S teffan, LA giers Conputer or oup, OCT 1985
110 KEM THIS PKOERAM WILL CO
MERT ANY PROGRAM LISTED TO
DISK INTO A LISTING OF ANY W IOTH YOU DESIRE
120 REM IT MAY BE A 28 COLUM
N LISTING SIMULATING A SCREE N LIST
130 REM IF LISTED TO DISK AN
0 OUTPUT WIDTH IS 80 OR LESS , OUTPUT MAY be EDITED WITH TI-WRITER
140 REM IF A NIMBERED LINE I $S$ EXACTLY 80, 160, OR 2408 Y TES UHEN LISTED, THIS PROGRA M WILL COHBINE IT WITH THE F

OLLOUING LINE
150 DATA $3,0 S K$, WDS, RD
160 CALL CLEAR : : PRINT TABC

1) ; "VARYLIST"

170 PRINT :: LINPUT NAME OF
INPIT PROGRAY LIST? ':IPS
1BO PRINT :: LINPUT PMAME OF OUTPUT FILE? ':OF\$:
: IF OFs=IFs THEN PRINT: 'IN PUT AND OUTPUT NAMES MUST BE DIFERRENT!': : 60TO 170
190 PRINT :: INPUT WIDTH OF OUTPUT FILE? ':OW : : OOLVO
$\mathrm{W}::$ IF OND79 THEN 220
200 READ N : : FOR $1=1$ TO N :
: READ OWS : : IF SECS(OFS,1, LEN(DNS))=ONS THEN ODH, $1=80$
210 NEXT I

220 OPEN H:IP\$,0ISPLAY, WAR
IABLE 80,INPUT :: OPEN $2:$ OF
\$, DISPLAY , Variable don, OUIT U
230 FOR $1=1$ T0 $9999:$ : $11==$ $\cdot$

240 IF EOF ( 1 )THEN $1=1+10000$
: 6070250 ELSE LINPUT $1: 1$
$29:$ : IF LEN(L2s)=0 THEN GOT
0240 ELSE LI $1=[198 L 2 *:$ IF
LEN(L2s)=80 THEN 60T0 240
250 FOR $0=1$ TO LEN(LI $\$$ STEP

):: J=J +1 :: NEXT $0::$ NEXT
1
260 CLOSE \#1 : CLOSE \#2 : :
PRINT :I-10000; "NUMBERED LIN
ES':J;'OUTPUT LINES': : END

100 REM MULTIFRINT－Geg．F． Steffari LA GGers Computer Grcupf，DUT，1585
110 REM TI EXTENDED EASIL AN ［ MEMOFY EXPANSION
120 REM WILL FEINT MULTIFLE
COLUMNS OF ANY TEXT FILE
130 DIM Lま（300）：：CALL CLEAF
：：PRINT TAE（10）；＂MULTIFRIN
T＂
140 PRINT ：：LINFUT＂NAME OF
INPUT FILE？＂：IFま
：：INPLIT＂LENGTH OF INPUT LI NES？＂：LL
150 PRINT ：：LINPUT＂NAME OF FRINTER？＂：F£ ：： INPUT＂PRINTEF LINE LENGTH？ ＂：PL
160 PRINT ：＂COLUMN SEPARATIG NS WILL BE CALCULATED．＂：：I NFUT＂NUMEEF GF COLUMNS？＂： C
$1701 F(2 *(M+C-1)+C * L L)>F L T$

```
HEN FRINT "GILL NOT FIT" ::
GOTG 160
1EU OFEN #1:IF*,INFLIT, DISFL
AY ,VAFIIEELE :: FOF I=1 TO E
00 : : IF EOF:1)THEN 210
190 LINFUT #1:L⿱(1):: IF ABC
(Lま(I))>127 THEN L&(I)="" ::
    GOTO 210 ! DISREGARD TAE EE
TTINGS
2 0 0 ~ N E X T ~ I ~ I
210 CLOSE #1 :: S=INTG&FL-QG
*LL+2*M) ) ( (C-1))+LL :: M=M+1
    :: OPEN #Z:Fま,DISPLAY ,VAFI
ABLE PL+1, OUTPUT
220 N=INT((I/1)/C):: FOF I=1
    TGN :: FOR J=0 TO [-1 :: F
RINT #2:TAE(J*S+M);L要I+J*M,
;:: IF I=1 AND LEN(Lま(1))>LL
    THEN J=C
230 NEXT J : : NEXT I :: GLOG
E #2 :: END
240 STOF
```

This program was written by Trauis Ringold．We reprinted it from the SEPT／OCT issue of ASCUG CALL NEWSLETTER．

Fress a number key and they change steps．Hold down ane key， four keep dancing．

| 10 RANDOMI2E | 160 GOSUE 180 | 8383854＇） |
| :---: | :---: | :---: |
| 20 GOSUB 250 | 1706070120 | 280 CALL CHAR！ $153,{ }^{\text {，} 0010 F E 383 ~}$ |
| 30 PRINT＇BREAKDANCING！！！＇ | 180 CALL UCHAR： $12,10, B D$－${ }^{\text {INT }}$ | 84482＇）${ }^{\text {）}}$ |
| 40 PRINT PHIMAN OR COMPITER | （RND＊2））＋1） | 290 CALL CHAR 154,2 B090FC3A3 |
| CONTROL？？？＇ | 190 CALL UCHAR $12,12, B D-$ INT | 9484808＂） |
| 50 INPIT COW | （RND＊2））+1 ） | 300 CALL CHAR $155,{ }^{\prime} 000000000$ |
| 55 CALL CLEAR | 200 CALL UCHAR $(12,16,80)$ | 0847936 ${ }^{\text {）}}$ |
| $\begin{aligned} & 60 \text { IF CON }=\text { "HMAN: THEN } 120 \\ & 70 \mathrm{BD}=\mathrm{INT}(\text { PND } \times 5)+153 \end{aligned}$ | 210 CALL UCHAR $(12,20, B D+$ INT （RND 2 ）$)+1$ ） | 310 CALL CHAR（156，${ }^{\prime} 00107 \mathrm{CBA} 7$ C281808＊） |
| 80 CALL KEY（ $0, W, E)$ | 220 CALL UCHAR $12,22, B D+$（INT | 320 CALL CHAR（157，${ }^{\prime} 142424783$ |
| 90 IF E＝1 THEN 120 | （PND＊2））+1 ） | 8＇） |
| 100 60SUB 180 | 230 RETUPN | 330 CALL CHARC158，＇41493EICI |
| 110607070 | 2406070120 | C2214＊） |
| 120 CALL KEY $(0, B D, N)$ | 250 REM CHARACTERS | 340 CALL CHARC159，440281E1D1 |
| $130 \mathrm{IFN}=0$ THEN 120 | 260 CALL CHAR（151，${ }^{\circ} 000000000$ | 41414＇） |
| 140 IF $80=32$ THEN 70 | 4884438＇） | 350 RETUPN |
| $150 \mathrm{BD}=8 \mathrm{D}+102$ | 270 CALL CHAR $152,{ }^{\circ} 000082443$ |  |

The foll owirig page appeared in the MARS6 issue of the Manners Newsletter．


By using the following chart，you can identify the manutacturer． of most disks by how the disk jacket is sealed．This can be very helfiful iri determining the origin of generic disks．

IDENTIFICATION OF Sk" DISKS


IIPS FROM THE TIGERCUE

## 13)

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lins from the ligercub, a full disk containing the conplete contents of this newsletter Nos. 1 through 14, 55 original prograse and files, just $\$ 15$ postpaid.
lips tron the Tigercub Vol. 2, another diskfull, conolete contents of Nos. 15 through 24, over bl tiles and prograss, also just 115 postpaid. Dr, both for $\$ 27$ postpaid.
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ligercub Full Disk Collections, just $\$ 12$ postpaid! Each of these contains either 5 or 6 of ay regular 33 catalog prograns, and the remaining disk space has been filled with sone of the best public donain prograns of the sane category. I an NOT selling publis domain prograss - ay own prograss on these disks are greatly discounteo froe their usual price, and the public donain is a FREE bonus!
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vocabilary and reading
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KALEIDOSCOPES AND DISPLAYS
For descriotions of these send a dollar for ay catalog!

I goofed again! if you tried the Buickloader in fips $\$ 29$ with edisk containing more than 21 prograns, you aey have already noticed that line 148 should go to 161, not 155.

Here's another ligercub Challenge - can you run this and get these results?
MIST
135 PRINT PJ
111 PRINT MAX
121 PRINT PI
131 PRINT MAX
गRUN

## 1

1
3.141592654
: SYntax ERROR IN $13!$

Some of you sharp-eyed newsletter editors may have noticed that this text is being hyphenated to avoid soae of those gaping blanks that occur when only a fen long words will fit on a right-justified line. The only way that 1 have found to acconplish this is to set the il-Writer right tab for the detual coluan width to be orinted and then, whenever a word is hyphenated, backspace and replace the blanks on that line with carets, adding enough extra carets to justify the line like this -
whenever^A^nor d^^is^Ahyphen-
It helps to go into fixed aode with CTRL when you are inserting extra carets.
then using this method, it is also necessary to set the paragraph indentation with IN on the comand line; if indentations are desired, they can be filled with caret signs, like this:
aAlunen using this eethod,

1 an told that my old 30 Sprite Routine ade it to the folden Ouickies section of ConpuServe, so here is an updated version. I have found that sprites can be controlled auch nore easily (although not moved is rapidyl with CALL LOCATE, rather than turning thea loose with CALL MDTION and then trving to catch up with thea!
13) CALL CLEAR : $:$ CALL SCREE N(5) A: FOR SET=2 TO 9 :1 CAL L COLDR(SET,8,5):\& NEXT SET
II DISPLAY AT (3, 12): 3 - D SPR ITE DEMO"
118 DISPLAY AT (22,1):"BY TI6 ERCUB' : $:$ CALL CHAR141,"FF8) 8181818181FF81818181818181FF
 11FF'1
12) CALL CHARIJ6, RFTs ("F",64 11: CALL HAENIFY(4):: FOR X
$=2$ TO 22 STEF $2: 1$ CALL SPR1
IE ( $1 x, 36, x / 2+1-(x) 7)-(x) \mid 3)$, 32+x $\pm 6,4 \mathrm{E}+\mathrm{x} \pm 61:$ : NEXT X
13: S=1: : CALL SPRITEITS, 11 , 16, 46, 7):: FOR $[=6$ TO 42 5T EF 2 :: CALL LOCATE (IS,46, C) 1: NEXT C : : FC=44:: FR=46 : : $Y=8$
14) FOF C $=F C$ TO FC+44 STEP 2 : CALL LOCATE (IS,FK,CI:: N
EXT C : : FC=FC+44:: CALL SP RITE ( $16+2,41,16, F R, F C):$ : CAL $\angle$ DELSFRITE (SS): : TC=FC-32
158 FOR C=FC 10 TC STEP -2: : CALL LOCATE $(\$ 5+2, F R, C):: N$ EXT C : : TR=FR $+34::$ FOR R=F R TO IR STEP $2:$ CALL LOCAT E( $\# 5+2, R, T C):$ : NEXT R
16) CALL SERITE(1S,41,16, TR, TC): CALL DELSPRITE(4S+2):1 $F R=T R: 1: T R=F R-72:$ : $F O R K=$ FR TO TR STEF -2 : 1 CALL LOC ATE (\&S, R, TC): : NEXT R
171 CALL SPRITE (IS $+2,49,16,1$ R,TC): : CALL DELSPRITE(IS)::
FR=TR:: TR=FK $+5 B:$ : FOR $R=$ FA TO TR STEF $2:$ : CALL LOCA TE(IS+2,R,TC):: NEXT R
18R $Y z Y+1$ :: IF Yz11 THEN CA LL DELSPRITE (\$S+2):: 6010 13 1 ELSE $5=5+2:$ : FC=TC: : FR= TR :: GQTO 141

Lan Swales in Belgiun can urite sone of the nost intricate routines, and pull the into the tightest knot. 1 had searched everywhere for a sorting routine for 2-diaensional arrays, and invented sone ridiculous ones, before lan sent as this jewel.

185 :DEMO of two diaensional sorting routine
lll ! Set up arfay to be sort ad
123 CALL CLEAR : : DIM As 121 , 4): RANDOHIIE : : DEF X $8=$ CHR (126ERND+65)
131 FOR JE1 $1021::$ As(3,1) systust 5 : : As (J, 2) $=$ STRs (IN 1(138zRND+1):: As(J, 3) $x \times 545 T$ $\operatorname{Rs}(I N T(1 I F R N D)):$ A $(J, 4)=!N$ T(1)ERND)IEXS: : NEXT J
14! INPUT "SORT EY? (1-4): $: K$ $15!\mathrm{Ja2f}$ !2-dinensional arri y sorting routine by lan Swa 1 les

169 DIM Q(21): FOR $x=1$ T0 2

171 $\mathrm{H}=1$
188 FOR $x=!$ TO J-1:1 IF ASI $\theta(x), K)<=A s(\theta(x+1), K)$ PHEN 21 1

191 $\mathrm{H}=-1$
289 f $=0(x):$ : $\theta(x)=0(x+1)$ : : $\theta$ $(x+1)=1$
211 NEXT X
221 IF M THEN 171
23: FOR $X=1$ TO 28 : $:$ FOR $L=1$
104 :1 PRINT A\$ $(8(x), L) i^{\prime \prime}$
':: : NEXT L :: PRINT :I NEXT
$x$ : $60 T 0141$

Dio you eyep need a routine that nould accapt either a string op a nueppic value? Try this.
 CCEPT HS :i $\mathrm{M}=\mathrm{VAL}$ (MS):1: 60TOF 121
111 ON ERRDR STOP : R RETURN 120
121 ON $(N=1)+26070 \quad 131,141$
131 PRINT MS :1 6010181
141 PRINT $\mathrm{N}: 1: 6070$ IIS

A useful tip froa Stephen Sham in England - if you have a long progran which wil run only in Basic, and whith will load tron disk with CALL FILES(l) but runs out of sesory when you try to run it; and if you have the hinimesory eodule -
Insert hinihesory sodule, select Basic, enter CALL FILES(I), Enter NEW, enter OLD DSKI. (filename). When loaded, enter SAVE EXPMEM2. When SAVEd, enter CALL LOAD(-31888, 63, 255), enter NEM, enter OLD EXPMEM2, and enter RUN. That is still a lot fastep than loading a long progras froi tape!

Another reason for never using the defalt sode of so-called UPDATE when opening a tile (without specifyyang INPUT or OUTPUT) is that you will get an $1 / 0$ EKKOR il if the file is wrste-protected.

Has anyone found a way to go fron Extended Basic to Basic without losing the progran in eseory, or at least \{ouling it up?
CALL LOAD $(-32116,4)$ has been published in any newsletters as a way to do this, but has anyone actually aade it mapk?

If you are printing out of ll-Writer Editor, finish your letter with CTRL $U$, SHIFT $L_{1}$ CTRL $U$ and when it is printed the paper will autonatically foed to the top of the next sheet.

To nake a note to yourself while programing, just type 1! and whatever you want to acke note of, then LIST - P10': 1 , and then type 1 and enter to delete the line.

Il-writer puts an extra space after every period that is followed by a spacs. If you don't want this extra space after abbreviations such as "Mr." or St.", use a caret sign ${ }^{\wedge}$ instead of a space after the period, Mr.AJones. But il-Writer puts only one space after? or ! so if you want two, put a caret after the syabol !a

One of the very best tips for this conth cones froa Paul A. Meadows, in the Septeaber 85 newsietter of T.l.N.S. Mova Scotia, Canada) -
How to print up to 132 tharacters in a line (condensed print, of course) out of Il-hriter! Just prepare your file as usual but in line 1ll! put formatter coasands such as . LH II;RM 132; IN +5;FI;AD. The fill and adjust are necessary, the londent is up to you, as are the left and right aapgins - but notice that right bargin set way - over at 132?

- Now, instead of saving the
file with SF, type fF and then $C$ DSKl. (tilenamel to print to the disk. This not only strips out the control C characters, it also erases the ll-Writer tab line that was applied to the last line of the file.
So now, with your printer opened and initialized for condensed print, go into the II-Mriter formatter node and print your file!

I have alde the following changes to ay working copy of the ligercut Menuloader. This sets up ay beaini printer to skip over the perforations and print full page width in elite print with a wide left bapgin for ring-binder punching. Other printers ay need changes in these codes.
621 DISPLAY AT (12, 1)ERASE AL L: PRINTER? PID" II ACCEPT A T(12,10)SILE(-18):P\$: $:$ 60SU 8895 :1 PPz3
841 OISPLAY AT124,1)I'PRINTE R NAME? PIO" : : ACCEPT AT $(24$ , 15)SI2E(-14):8PF :1 605488 95 : 1 PRINT 2:SE65(Ds,1,4)4 - - Disknane= "WNs

895 DPEN 13:Ps, VARIABLE 132 :1 PRINT I3:CHRS (27);"B";CHR
 HRS (27); "N";CHRS(6):: RETURN

I always keep a backup of everytining, on the flipped side of another disk, and I often mant to verify that the backup has everything that is on the aastep, and vice versa,
111 DISPLAY AT(3,6)ERASE ALL "TIGERCUB DOUBLECAT": 1" To conpare the contents of ": 1 "a disk with a backup." bby
Jia Patersen
11) DISPLAY AT(12,1):'INSERT MASTER OISK": :"PRESS ENTER -
12) CALL KEY(A,K, $51:$ : IF 5:1 THEN 128
131 DATA OF, DV,IF,IV,P
141 RESTORE : : FOR I=! TO 5
If READ TS(1): $:$ NEXT I
15! Din Fs(l27):1 OPEN $11^{\circ} \mathrm{D}$

SK1.", INPUT , RELATIVE, INTERN AL : : JNFUT $11: A S, J, J, K:: \mathcal{F}$ ( $(8)=A s A^{*}$ " $4 S T K S(K)$
$169 x=x+1:$ : INPUT 11:Fs(X), l, J, K :: IF Fs (X) $=$ "' THEN 17
 (1):: 6070169

178 $x=x-1:$ : CLOSE $11:$ : DIS PLAY AT(12,1)ERASE ALL: "KEMO VE MASTER DISK': : 'INSERT BA CKUP DISK": :"FRESS ENTER"
185 CALL KEY(I, K, S):: If $S=1$ THEN 189
19: OPEN 11:"DSK1.',INPUT, R ELATIVE, INTERNAL : : INPUT 11 :AE,J, J,K: : DISFLAY AT(1,1)
ERASE ALL:Fg(D);: DISFLAY A T(1, 15):ASG" "\&STRs(K);

291 : : INPUT 1:A $\$, 1, J, K: 1$
 - \&Ts (ABS(I))

218 IF KGFF!(Y)THEN DISFLAY AT(R+1, l):Fs(Y);: DISPLAY A T(R+1,15) \&K!;:: 60TO 254
22 IF K\$(Fs(Y)THEN DISPLAY
AT( $\mathrm{F}+1,15$ ): $\mathrm{KB} ;:: Y=\gamma-1: 1: 60$ 10251
231 DISFLAY AT(F+l, 1); FS(Y); :: $k=k+1$ :: GOSUB 291 : $: ~ Y=Y$ $+1$
248 IF $\mathrm{K} \$=5$ S IY ITHEN 211 ELSE IF K\$(Fs(y)THEN 221 ELSE IF YKX THEN 23I ELSE DISPLAY A T(R, 15):Ks;
2516010211
261 IF Y $7 \times$ IHEN 28!
$271 R=R+1$ 1: 605ub 291 : $:$ F0 $R \mathrm{~J}=\mathrm{Y}$ TO $\times: 1:$ OISPLAY ATIR,I lifsld): Raftl : : 60SuB 298 :: MEXT J
281 DISPLAY AT $24,11:$ * $\quad P$ RESS ANY KEY': : CALL KEY I!, K, S): : IF S=1 THEN 28! ELSE CLOSE II: : END
298 IF RL23 THEN RETURN
311 DISPLAY AT124,1):"PRESS
ANY KEY" :1 DISPLAY AT 124,11 I" ": © CALL KEY(I,K,S): IF Sas THEN 301
3II CALL CLEAK : : Rz1: : RET URN

And that is just about
mEMORY FULL!
Ji: Peterson

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